WHAT IS CLAIMED IS:

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1	A	method.	com	nriging

introducing an exogenous fluorescent contrast agent into a biologic tissue, the tissue multiply scattering light with a mean time-of-flight, and the agent having a fluorescence lifetime within a factor of about ten of the mean time-of-flight;

exposing the tissue to an excitation light with a predetermined time-varying intensity:

detecting a light emission from the tissue in response to said exposing; generating an image of the tissue by mapping spatial variation of a level of a fluorescence characteristic of the tissue from the light emission in accordance with a mathematical expression modeling multiple light scattering behavior of the tissue; and

wherein the agent is selected in accordance with a predetermined relationship between degree of image contrast and at least one of fluorescence yield or the fluorescence lifetime

- 2. The method of claim 1, wherein the at least one is fluorescence lifetime.
- The method of claim 1, wherein the fluorescence lifetime is in a range of about 0.1 to 10 nanoseconds.
- The method of claim 1, wherein the fluorescence lifetime is in a range of about 0.5 to 5 nanoseconds.
- The method of claim 1, wherein the fluorescence lifetime is in a range of about 0.2 to 2 nanoseconds.
- The method of claim 1, wherein the mathematical expression corresponds to a diffusion equation approximation of multiply scattered light.
- The method of claim 1, wherein the fluorescence characteristic is at least one of fluorescence lifetime, fluorescence yield, or fluorescence quantum efficiency.
- 1 8. The method of claim 1, wherein said generating includes determining a 2 modulation amplitude change and a phase change of the light emission relative to the 3 excitation light.
- The method of claim 8, wherein the fluorescence characteristic corresponds to the fluorescence lifetime.

- 10. The method of claim 9, wherein the mathematical expression is in a frequency domain form and the image contrast is provided in terms of at least one of phase shift contrast or modulation contrast.
 - 11. A method comprising:

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- selecting a fluorescent contrast agent as a function of a predetermined time-offlight for a tissue to be imaged in accordance with a mathematical expression modeling the behavior of multiply scattered light traveling through the tissue, the fluorescent contrast agent have a fluorescence lifetime within a factor of ten of the predetermined time-of-flight; and
 - providing the fluorescent agent for introduction into the tissue.
- 12. The method of claim 11, wherein the fluorescence lifetime is in a range of about 0.1 to 10 nanoseconds.
- 13. The method of claim 11, wherein the fluorescence lifetime is in a range of about 0.5 to 5 nanoseconds.
- 14. The method of claim 11, wherein the fluorescence lifetime is in a range of about 0.2 to 2 nanoseconds.
- 15. The method of claim 11, wherein the mathematical expression corresponds to a diffusion equation approximation of multiply scattered light.
- 16. The method of claim 11, further comprising generating an image of the tissue by mapping spatial variation of a level of a fluorescence characteristic of the tissue.
 - A method, comprising:
- evaluating ability of a number of fluorescent agents to provide image contrast between different tissue types, said evaluating including determining a relationship between degree of image contrast and at least one of fluorescence lifetime or fluorescence yield of the agent;
 - selecting one of the agents based on said evaluating; and
- providing the selected one of the agents for introduction into a biologic tissue to enhance imaging performed in accordance with a mathematical expression modeling the behavior of multiply scattered light traveling through the tissue.

- 18. The method of claim 17, wherein the at least one is fluorescence lifetime.
- 1 19. The method of claim 17, wherein the mathematical expression 2 corresponds to a diffusion equation approximation of multiply scattered light.
- 1 20. The method of claim 19, further comprising applying the diffusion 2 equation approximation in a frequency domain form.
- The method of claim 17, further comprising generating an image of the 1 2 tissue by mapping spatial variation of a level of a fluorescence characteristic of the tissue.
- 1 The method of claim 17, wherein the mathematical expression is in a frequency domain form and the image contrast is provided in terms of at least one of 2 3 phase shift contrast or modulation contrast.
 - 23. A method, comprising:

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- exposing a biologic tissue to a first excitation light;
 - detecting a first emission from the tissue in response to the first excitation light;
- 4 introducing a fluorescent contrast agent into the tissue after said detecting;
 - exposing the tissue after said introducing to a second excitation light:
- 6 sensing a second emission in response to the second excitation light;
- 7 comparing data corresponding to the first emission with data corresponding to the 8 second emission to evaluate contrast provided by the agent as a function of at least one of 9 fluorescence lifetime, fluorescence vield, or quantum efficiency.
 - 24 The method of claim 23, wherein the at least one is fluorescence lifetime.
 - 25. The method of claim 24, wherein the fluorescence lifetime is in a range of about 0.1 to 10 nanoseconds.
- 1 26. The method of claim 24, wherein the fluorescence lifetime is in a range of 2 about 0.5 to 5 nanoseconds
- 1 27 The method of claim 24, wherein the fluorescence lifetime is in a range of 2 about 0.2 to 2 nanoseconds.
- 28 The method of claim 23, further comprising evaluating the first and second emissions with a mathematical expression modeling the behavior of multiply 3 scattered light traveling through the tissue.

The method of claim 28, wherein the mathematical expression 29. 2 corresponds to a diffusion equation approximation of multiply scattered light.

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- The method of claim 23, further comprising generating an image of the 1 30 2 tissue by mapping spatial variation of a level of a fluorescence characteristic of the tissue.
- 1 The method of claim 30, wherein the fluorescence characteristic is at least one of fluorescence lifetime, fluorescence yield, or fluorescence quantum efficiency. 2
- 1 The method of claim 30, wherein said generating includes determining a modulation amplitude change and a phase change of the light emission relative to the 2 3 excitation light.
- 1 33. The method of claim 32, wherein the fluorescence characteristic 2 corresponds to the fluorescence lifetime.
- 1 The method of claim 23, wherein wavelength of the first excitation light is 34. generally the same as wavelength of fluorescent light emitted by the agent in response to 2 the second excitation light.